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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/085,540	02/27/2002	Makoto Fujimoto	1232-4827	9857

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MORGAN & FINNEGAN, L.L.P.
3 WORLD FINANCIAL CENTER
NEW YORK, NY 10281-2101

EXAMINER	
YE, LIN	

ART UNIT	PAPER NUMBER
2615	

DATE MAILED: 04/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/085,540	FUJIMOTO, MAKOTO	
	Examiner	Art Unit	
	Lin Ye	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 February 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-10,12 and 14-17* is/are rejected.

7)☒ Claim(s) *4, 11 and 13* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/24/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Petition

1. Acknowledgment is made of applicant's petition to expunge erroneously filed document under 37 CFR § 1.59(b) filed on 5/25/04. The USPTO Office will mail a decision of the petition late soon. Therefore, the decision will be separated from this office action.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in 10/085,540 on 2/27/2002. It is noted, however, that applicant **has not** filed a certified copy of the Japan 55510/2001 application and Japan 46420/2002 application as required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kajita U.S. Patent 5,457,540 in view of Kim U.S. Patent 5,710,594 and Otsubo Japan Publication 64-037168.

Referring to claim 1, the Kajita reference discloses in Figures 1, 4 and 9, an imaging apparatus for picking-up a subject image formed by a imaging optical unit (e.g., project lens

17 and reflector mirror 18, see Col. 4, lines 65-67), comprising: an image pickup device (CCD unit 38, see Col. 5, lines 50-55) for photoelectrically converting the subject image; and a correcting circuit (the digital signal processing 41 and shading corrector 40) for correcting image signals outputted from each pixel of the image pickup device based on the gamma conversion process (e.g., image converted through the gamma conversion process so that the resulting signal exhibits desired output characteristics equivalent to the original image, see Col. 5, lines 65-67 and Col. 6, lines 4-6) and light quantity distribution data (e.g., shading data stored in shading corrector 40 for reducing variations of the light quantity distribution by the incident light, see Col. 5, lines 60-65) . However, the Kajita reference does not explicitly show the memory also stores **gamma property (characteristics) data**, and light quantity distribution data (shading data) of incident light in accordance with **pixel positions on the image pickup device.**

The Kim reference teaches in Figure 2, a digital gamma correction apparatus comprising a characteristic selector (24), gamma characteristic corrector (23) and a memory (26) stores a desired gamma characteristic (property) data; the characteristic selector (24) generates a signal which represents the type of gamma correction to be performed by the gamma characteristic corrector (23) (See Col. 4, lines 21-26). The Kim reference is evidence that one of ordinary skill in the art at the time to see more advantages the imaging apparatus have a memory to store gamma property data so that the apparatus has more flexible option to choice any type of desired gamma property data for correcting image signal.

The Otsubo reference teaches Figures 1-3, an image apparatus for picking-up a subject image comprising a image pickup device (CCD 1), a memory (8, 9) for storing a light

quantity distribution data of incident light in accordance with pixel positions on the image pickup device (the light quantity distribution are variance in accordance with pixel position on the image pickup device as shown in Figure 2, the pixels in the center part of image pickup device have high light quantity, also see Constitution of Abstract). The Otsubo reference is evidence that one of ordinary skill in the art at the time to see more advantages the imaging apparatus have a memory to store a light quantity distribution data of incident light in accordance with pixel positions on the image pickup device so that the apparatus can execute the correction to obtain a proper light-quantity distribution.

For those reasons, it would have been obvious to one of ordinary skill in the art to modify the image apparatus of Kajita ('540) by providing the memory stores gamma property (characteristics) data of the image pickup device as taught by Kim ('594), and light quantity distribution data of incident light in accordance with pixel positions on the image pickup device as taught by Otsubo ('168).

Referring to claim 2, the Kajita, Kim and Otsubo references disclose all subject matter as discussed with respected to claim 1; the Otsubo reference discloses wherein the correcting circuit (controller 12) determines incident light quantity for each pixel based on the image signals outputted from each pixel, corrects the incident light quantity based on the light quantity distribution data stored in the memory, and generates corrected image signals in accordance with the corrected incident light quantity (see Otsubo's Constitution of Abstract); and the Kim reference discloses the gamma property data stored in the memory (26), corrects the incident light quantity based on the light quantity distribution data stored in the memory,

and generates corrected image signals in accordance with the corrected incident light quantity.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kajita U.S. Patent 5,457,540 in view of Kim U.S. Patent 5,710,594, Otsubo Japan Publication 64-037168 and Tamura et al. U.S. Patent 4,586,029.

Referring to claim 3, the Kajita, Kim and Otsubo references disclose all subject matter as discussed with respected to claim 1, excepted the references do not explicitly show the memory also stores light receiving ratio distribution data in accordance with pixel positions on the image pickup device, and the correcting circuit correct the image signals outputted from each pixel also based on the light receiving ration distribution that is in the memory.

The Tamura reference teaches in Figure 1-2, the imaging apparatus has a memory for storing light receiving ratio data in accordance with pixel (for storing electric charges) positions on the image pickup device (light receiving part 1); and comparing the ratio of quantities of electric charges (pixels) stored during a period of time corresponding to an actual exposure time with the ratio of quantities of theses electric charges stored during a period of time shorter than the exposure time (See Col. 1, lines 35-45). The Tamura reference is evidence that one of ordinary skill in the art at the time to see more advantages the imaging apparatus have the memory also stores light receiving ratio distribution data in accordance with pixel positions on the image pickup device so that blur detection can be accurately accomplished. For those reasons, it would have been obvious to one of ordinary skill in the art to modify the image apparatus of Kajita ('540) by providing the memory also stores light

receiving ratio distribution data in accordance with pixel positions on the image pickup device, and the correcting circuit correct the image signals outputted from each pixel also based on the light receiving ration distribution that is in the memory as taught by Tamura ('029).

6. Claims 5-6 rejected under 35 U.S.C. 103(a) as being unpatentable over Kajita U.S. Patent 5,457,540 in view of Kim U.S. Patent 5,710,594, Otsubo Japan Publication 64-037168 and Watanabe Japan Publication 06-165023.

Referring to claim 6, the Kajita, Kim and Otsubo references disclose all subject matter as discussed with respected to claim 1, excepted the references do not explicitly show the correcting circuit corrects image signals based on light quantity distribution data in accordance with the condition of a imaging optical unit detected by a detecting circuit.

The Watanabe reference teaches a detecting circuit (focal location detector 38, zoom location detector 37 and iris diaphragm value detector 39) for detecting the condition of the shooting optical unit (See pages 3-4, [0023]-[0025]), wherein the correcting wherein the correcting circuit (the quantity of light amendment block 3) corrects image signals based on light quantity distribution data in accordance with the condition of the imaging optical unit detected by said detecting circuit in the light quantity distribution data stored in the memory (memory section of CPU, See page 3, [0022]). The Watanabe reference is evidence that one of ordinary skill in the art at the time to see more advantages the correcting circuit corrects image signals based on light quantity distribution data in accordance with the condition of a imaging optical unit detected by a detecting circuit so the output image signal can be more

accurately and completely corrected without effecting by the variance of the optical unit. For those reasons, it would have been obvious to one of ordinary skill in the art to modify the image apparatus of Kajita ('540) by providing the correcting circuit corrects image signals based on light quantity distribution data in accordance with the condition of a imaging optical unit detected by a detecting circuit as taught by Watanabe ('023).

Referring to claim 6, the Kajita, Kim, Otsubo and Watanabe references disclose all subject matter as discussed with respected to claim 5, and the Watanabe reference discloses wherein the condition of the imaging optical unit to be detected by the detecting circuit includes at least one of the zooming condition, focusing condition, and stop (iris) condition (See the Watanabe's Constitution of the Abstract).

7. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kajita U.S. Patent 5,457,540 in view of Kim U.S. Patent 5,710,594, Otsubo Japan Publication 64-037168 and Sato U.S. Patent reference 6,650,365.

Referring to claims 7-8, the Kajita, Kim and Otsubo references disclose all subject matter as discussed with respected to claim 1, excepted the references do not explicitly show an image recording circuit for recording the image signals corrected by the correcting circuit and an image display device for displaying images obtained by the image signals corrected by the correcting circuit.

The Sato reference teaches in Figure 1, an imaging processing apparatus comprising a imaging correction circuit (27, See Col. 3, lines 20-23) which having a plurality of image correction processes to an image signal in a processing order to generate a corrected image

signal; an image recording circuit (memory card M) for recording the image signals corrected by the correcting circuit and an image display device (LCD) for displaying images obtained by the image signals corrected by the correcting circuit (see Col. 3, lines 50-60). The Sato reference is evidence that one of ordinary skill in the art at the time to see more advantages an image recording circuit for recording the image signals corrected by the correcting circuit and an image display device for displaying images obtained by the image signals corrected by the correcting circuit so that providing more flexible option to user for saving or reviewing the corrected image late. For those reasons, it would have been obvious to one of ordinary skill in the art to modify the image apparatus of Kajita ('540) by providing image recording circuit for recording the image signals corrected by the correcting circuit and an image display device for displaying images obtained by the image signals corrected by the correcting circuit as taught by Sato ('365).

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Otsubo Japan Publication 64-037168 in view of Mabuchi et al. U.S. Patent 5,485,208.

Referring to claim 9, the Otsubo reference discloses in Figure 3, an imaging apparatus having an image pickup device (CCD 1) for photoelectrically converting a subject image, and forms a subject image on the image pickup device, comprising: a memory (memories 8, 9) for storing light quantity distribution data of incident light in accordance with pixel positions on the image pickup device; and a communications terminal (circuit line) for transmitting the light quantity distribution data stored in the memory to the imaging apparatus (e.g., the controller 12 executes correction to obtain a proper light-quantity distribution based on the

light-quantity distribution stored in the memories 8,9, see Constitution of Abstract). However, the Otsubo reference does not explicitly show an optical unit which can be detachably mounted to an imaging apparatus.

The Mabuchi reference teaches in Figures 1A-b and 6, the imaging apparatus comprising an image sensor (CCD, see Col. 15, lines 5-10), and an interchangeable optical unit can be detachably mounted to the imaging apparatus (See Col. 26, lines 59-65). The Mabuchi reference is evidence that one of ordinary skill in the art at the time to see more advantages an optical unit can be detachably mounted to an imaging apparatus so that the imaging apparatus has more flexible option to interchange any desired type of lens. For those reasons, it would have been obvious to one of ordinary skill in the art to modify the image apparatus of Otsubo ('168) by providing an optical unit which can be detachably mounted to an imaging apparatus as taught by Mabuchi ('208).

9. Claims 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kajita U.S. Patent 5,457,540 in view of Kim U.S. Patent 5,710,594, Otsubo Japan Publication 64-037168, Mabuchi et al. U.S. Patent 5,485,208 and Vogel U.S. Patent 5,668,596.

Referring to claim 10, the Kajita, Kim and Otsubo references disclose all subject matter as discussed with respected to claim 1, excepted the references do not explicitly show an optical unit that can be detachably mounted to an imaging apparatus.

The Mabuchi reference teaches in Figures 1A-b and 6, the imaging apparatus comprising an image sensor (CCD, see Col. 15, lines 5-10), and an interchangeable optical unit can be detachably mounted to the imaging apparatus (See Col. 26, lines 59-65). The Mabuchi

reference is evidence that one of ordinary skill in the art at the time to see more advantages an optical unit can be detachably mounted to an imaging apparatus so that the imaging apparatus has more flexible option to interchange any desired type of lens. For those reasons, it would have been obvious to one of ordinary skill in the art to modify the image apparatus of Kajita ('540) by providing an optical unit which can be detachably mounted to an imaging apparatus as taught by Mabuchi ('208).

The Kajita, Kim and Otsubo references also do not explicitly show memory in optical unit side stores light quantity distribution data and memory in image apparatus side stores gamma property data.

The Vogel reference teaches in Figures 4-5, a digital imaging device comprising a optical unit side (optical sub-assembly 20 of camera 10) and image apparatus side (processing section 34 of camera 10), a matrix coefficient memory used for correcting imaging signal output from CCD (28); and the memory can be either in optical unit side or image apparatus side. The Vogel reference is evidence that one of ordinary skill in the art at the time to see more advantages any image correction data can be either in optical unit side or image apparatus side so that the image system has more flexible design option to place the desired data in any sides of system. For those reasons, it would have been obvious to one of ordinary skill in the art to modify the image system of Kajita ('540) by providing memory in optical unit side stores light quantity distribution data and memory in image apparatus side stores gamma property data as taught by Vogel ('596).

10. Claims 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kajita U.S. Patent 5,457,540 in view of Kim U.S. Patent 5,710,594, Otsubo Japan Publication 64-037168, Mabuchi et al. U.S. Patent 5,485,208, Vogel U.S. Patent 5,668,596 and Tamura et al. U.S. Patent 4,586,029.

Referring to claim 10, the Kajita, Kim, Otsubo, Mabuchi, Vogel and Tamura references disclose all subject matter as discussed with respected to claims 1, **3** and 10.

11. Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kajita U.S. Patent 5,457,540 in view of Kim U.S. Patent 5,710,594, Otsubo Japan Publication 64-037168, Mabuchi et al. U.S. Patent 5,485,208, Vogel U.S. Patent 5,668,596 and Watanabe Japan Publication 06-165023.

Referring to claim 14, the Kajita, Kim, Otsubo, Mabuchi, Vogel and Watanabe references disclose all subject matter as discussed with respected to claims 1, **5** and 10.

Referring to claim 15, the Kajita, Kim, Otsubo, Mabuchi, Vogel and Watanabe references disclose all subject matter as discussed with respected to claims 1, **6** and 10.

12. Claims 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kajita U.S. Patent 5,457,540 in view of Kim U.S. Patent 5,710,594, Otsubo Japan Publication 64-037168, Mabuchi et al. U.S. Patent 5,485,208, Vogel U.S. Patent 5,668,596 and Sato U.S. Patent reference 6,650,365.

Referring to claims 16-17, the Kajita, Kim, Otsubo, Mabuchi, Vogel and Sato references disclose all subject matter as discussed with respected to claims 1, 7-8 and 10.

Allowable Subject Matter

13. Claims 4, 11 and 13 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Referring to claims 4, 11 and 13, the prior art does not teach or fairly suggest the correcting circuit determines incident light quantity for each pixel based on the image signals outputted from each pixel and gamma property data stored in the memory, corrects the determined incident light quantity based on the light quantity distribution data and light receiving ratio distribution data, and generates corrected image signals in accordance with the corrected incident light quantity, and combining with the features cited in claims 1 and 10.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Noguchi et al. U.S 2004/0201707 discloses an imaging apparatus comprising a nature of the light quantity distribution information stored in the memory (1028) for correcting imaging signal as shown in Figure 25.

b. Sano et al. U.S. 6,023,533 discloses an input image is divided into relatively small blocks of pixels and the gray scale characteristic is calculated for each area.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lin Ye whose telephone number is (571) 272-7372. The examiner can normally be reached on Mon-Fri 8:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James J. Groody can be reached on (571) 272-7950. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TUAN HO
PRIMARY EXAMINER

Lin Ye
January 19, 2005